۱-۱- چکیده انگلیسی

Abstract:

Parkinson's disease is a neurodegenerative disease, which is the most common neurodegenerative disorder associated with age after Alzheimer. The disease is caused by the loss of dopaminergic neurons of the midbrain and subsequent reduction of dopamine in the striatum. The pathophysiology of Parkinson's disease has not been clearly identified, but it has been shown that oxidative stress plays an important role in it. Hydrogen Sulfide (H2S) is an endogenous gas neurotransmitter that has been shown to have neuroprotective effects. In this study, the effect of pretreatment with hydrogen sulfide on the creation and severity of Parkinson's disease in the 6-hydroxy-dopamine (6-OHDA) animal model is studied. To investigate the hydrogen sulfide neuroprotective mechanism, malondialdehyde level (MDA), as an important indicator of oxidative stress, is checked in the brain's substantia nigra core. The 6-OHDA toxin was injected into the middle cerebral area of the frontal brain by a stereotaxic surgery. Sodium hydrogen sulfide (NaHS) was given as a hydrogen sulfide feeder from an hour before the toxin injection to 7 days later, daily with doses of 3 and 5.6 mg per kg of body weight. In the third and fifth week after surgery, apomorphine-induced rotational-behavioral tests were performed and the animal's body circling was made. In the seventh week after brain surgery, the animals were extracted and the midbrain area was isolated and homogenized. The concentration of MDA in homogenized supernatant created was measured using a special kit. The apomorphine-induced rotation test showed that treatment with NaHS caused a significant decrease in the number and severity of rotations. Treatment with NaHS also significantly reduced the deviations of the circling toward the damage hemisphere in the mice receiving the toxin. The effect of both doses of NaHS was almost the same and did not have a significant difference. Measurement of midbrain malondialdehyde level showed that treatment with NaHS significantly decreased MDA concentration. Our results indicate that hydrogen sulfide has significant anti-Parkinsonian effects, mediated by reducing the level of malondialdehyde and oxidative stress.